

## ***Recent trends in energy prices***

The West Coast electricity crisis, which began in late 2000 and continued through much of 2001, caught government, utilities, businesses, and consumers by surprise. Many factors contributed to this crisis including poorly designed electricity market restructuring in California, over reliance by some utilities on the wholesale market, market manipulation by some suppliers and traders, high natural gas prices, the drought in the Northwest, and failure by utilities to add enough new generation capacity during the 1990's. These factors combined to limit available electricity supplies and dramatically increased the wholesale price of electricity on the west coast.

During the late 1990's many regional utilities and a few large industrial users had let their BPA contracts expire and turned to the wholesale markets for a portion of their electricity supply. In 2000 they suddenly found themselves paying prices per unit of electricity<sup>1</sup> that were a factor of ten higher than historical norms. Several utilities used up their cash reserves and had to borrow in order to purchase on the wholesale market, a process that eventually reduced their credit status. Many of these utilities and industries that were participating in the wholesale market rushed back to BPA for secure low priced electricity. However, BPA's resources were fully committed and it had to turn to the wholesale market to meet the incremental new demand. During the drought year of 2001, in order to secure electricity supplies, many utilities and the Bonneville Power Administration (BPA) entered into long-term power purchase agreements at rates that were much higher than historical norms. As a consequence utilities and BPA had to raise the rates they charged their customers. These high priced long-term (approximately 5 year) contracts are expiring, which will allow utilities to lower rates slightly over the next several years.

Average retail residential and commercial electricity rates have increased approximately 30 percent since 1999, the last year before the west coast energy crisis. Industrial prices increased about 50 percent. Recently prices have begun to stabilize and, in some cases, decline as utility and BPA finances improve. The 2005 drought coupled with the federal court ruling on water spill has made BPA's financial situation more uncertain. Figure 1 illustrates the real electricity prices<sup>2</sup> by sector for the period 1970-2005: note that prices for 2004 and 2005 are preliminary. The primary factors contributing to the recent higher electricity prices are:

1. Higher prices for natural gas, which powers much of the **new** electric generation on the West coast.
2. Poor market design and failed deregulation in California's electricity market, which resulted in market manipulation and higher priced long-term electricity contracts.
3. Confusion about the future of market deregulation.
4. Failure to invest in new generation and transmission capacity during the 1990's even as demand steadily grew.

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<sup>1</sup> Prior to the crisis electricity sold for \$20-40 per Megawatt-hour depending on the season. During the crisis period wholesale prices frequently exceeded \$200 per Megawatt-hour

<sup>2</sup> Real prices, also referred to as constant dollar prices, remove the effect of inflation making comparison of prices between different years meaningful. Figure 1 prices are in year 2000 cents/Kilowatt-hr.

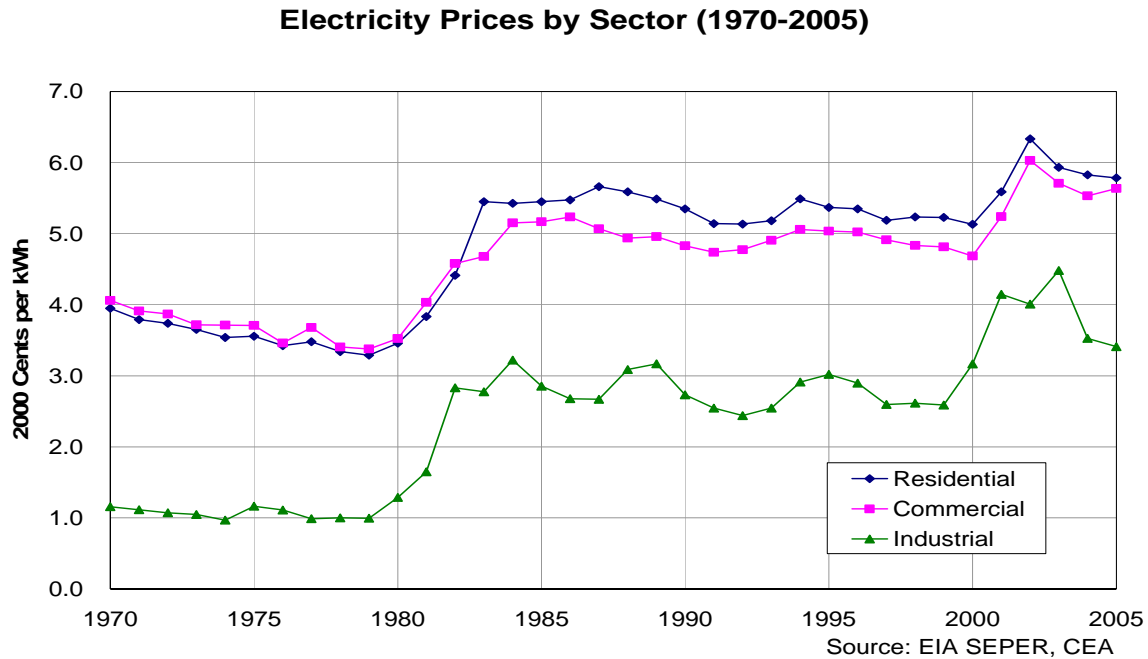


Figure 1: Retail electricity prices by sector in Washington State, 1970-2005.

While Figure 1 presents average electricity prices for the state, retail rates can vary significantly by utility. Table 1 below presents retail prices by sector for a subset of eight utilities within Washington state and gives an indication of price variance. The two investor-owned utilities (IOU) have similar electricity prices except in the industrial sector. The cooperative, Inland Power, has lower prices than the IOU's. The two PUD's have markedly different prices; Chelan has access to BPA power and owns large hydroelectric generating assets, sells power to other utilities and so has very low electricity prices. Clark PUD has depended on its own natural gas generation for 50% of its supply thus making its rates subject to high natural gas prices. Of the two municipal utilities shown, Tacoma has a small price advantage, in part because it was better prepared for the energy crisis of 2000-01.

Table 1: Retail electricity price by utility

Utility	Class	Residential (cents/ Kwh)	Commercial (cents/ Kwh)	Industrial (cents/ Kwh)
Avista Corp	Investor Owned	6.20	7.07	4.56
Puget Sound Energy	Investor Owned	6.17	6.89	7.07
Inland Power & Light	Cooperative	5.39	5.03	4.04
PUD No 1 of Chelan County	Publicly Owned	2.98	3.23	1.90
PUD No 1 of Clark County	Publicly Owned	7.79	6.31	4.89
Seattle City Light	Public, Municipal	6.76	6.14	5.02
Tacoma Power	Public, Municipal	6.14	4.69	4.49
Bonneville Power Admin	Federal	--	3.17	3.47

### ***How do energy prices in Washington compare to other states?***

Washington's relative advantage as a low cost electricity state has been declining. In 1999 our state had the lowest state average electricity prices for residential and industrial consumers and the next to lowest commercial prices. By 2003, a significant number of states had lower commercial and industrial electricity prices while our residential price ranking remained about the same. As the remaining high priced contracts from 2000-01 expire our price ranking should improve a bit. Since 1999 Washington's relative ranking for natural gas prices has improved slightly for the commercial and residential sectors. However, Washington's industrial natural gas prices were among the lowest in 1999, but by 2003 had slipped closer to the U.S. average.

Table 1: Washington State Ranking for Electricity and Natural Gas Prices

<b>Electricity Prices</b>			
<b>Sector</b>	<b>1999</b>	<b>2001</b>	<b>2003</b>
Residential	50	49	49
Commercial	49	47	38
Industrial	50	34	32

<b>Washington State Ranking Natural Gas Prices</b>			
<b>Sector</b>	<b>1999</b>	<b>2001</b>	<b>2003</b>
Residential	34	33	38
Commercial	32	22	36
Industrial	44	42	33

Rank scale: 50 = lowest, 1 = highest, Source: EIA.

Nationally, Washington ranks much higher than average for gasoline and diesel fuel prices. According to the weekly AAA survey of service station prices in July of 2005, Washington State ranked third highest in gasoline price and fourth highest in diesel prices. Our higher gasoline and diesel prices are primarily the result of the isolation of the west coast petroleum fuels market, limited surplus refinery capacity in the west for peak demand season, and slightly higher fuel taxes. However, relative to other states in the western United States our transportation fuel prices are similar as shown below in Table 2.

Table 2: Gasoline and diesel fuel prices for the Western U.S. for July 2005.

<b>State</b>	<b>Regular gasoline</b>	<b>Diesel</b>
UT	\$2.30	\$2.51
ID	\$2.36	\$2.56
AZ	\$2.40	\$2.53
OR	\$2.43	\$2.56
WA	<b>\$2.47</b>	<b>\$2.62</b>
NV	\$2.51	\$2.59
CA	\$2.59	\$2.70

Source: Automobile Association of America

### ***How do retail electricity, natural gas and gasoline price increases impact Washington's "average" household and commercial business?***

Estimated average monthly electricity bills have increased about 30 percent for residential and commercial consumers from 1999 to 2001. Estimated natural gas bills increased by nearly 60 percent for residential consumers and nearly 70 percent for commercial consumers from 1999 to

2002. Estimated monthly residential gasoline and diesel bills have increased by over 30 percent from 1999 to 2003. Table 3 illustrates the economic impact of recent high energy prices on residential and commercial consumers.

Table 3: Impact of electricity, natural gas, and gasoline price increases on households and commercial businesses.

<b>Electricity Expenditures</b>	<b>1999</b>	<b>2002 Estimated</b>	<b>Difference</b>
Annual expenditures per residential customer	\$ 700.06	\$ 889.08	\$ 189.02
Monthly expenditures per residential customer	\$ 58.34	\$ 74.09	\$ 15.75
Annual expenditures per commercial customer	\$ 4,593.69	\$ 6,063.67	\$ 1,469.98
Monthly expenditures per commercial customer	\$ 382.81	\$ 505.31	\$ 122.50

<b>Natural Gas Expenditures</b>	<b>1999</b>	<b>2002 Estimated</b>	<b>Difference</b>
Annual expenditures per residential customer	\$ 541.13	\$ 860.40	\$ 319.27
Monthly expenditures per residential customer	\$ 45.09	\$ 71.70	\$ 26.61
Annual expenditures per commercial customer	\$ 3,063.15	\$ 5,176.73	\$ 2,113.57
Monthly expenditures per commercial customer	\$ 255.26	\$ 431.39	\$ 176.13

<b>Gasoline expenditures</b>	<b>1999</b>	<b>2003 estimated</b>	<b>Difference</b>
Annual expenditures per household	\$1357.61	\$1760.71	\$403.10
Monthly expenditures per household	\$113.13	\$146.73	\$33.59

The average residential household saw their monthly electricity bill increase about \$16/month from 1999 to 2002 and their monthly natural gas bill increase about \$27/month from 1999 to 2002. The average commercial business saw their monthly electricity bill increase a little more than \$122/month and their natural gas bill increased a little more than \$176/month. The average residential household saw their monthly gasoline bill increase about \$34/month from 1999 to 2003<sup>3</sup>. Commercial gasoline expenditures cannot be easily estimated and are not included in Table 3.

### ***What do high-energy prices mean for Washington State?***

During the 20<sup>th</sup> century energy expenditures measured as a percentage of the United States Gross Domestic Product (GDP) have steadily declined, primarily due to improvements in energy resource extraction technology, energy efficiency, and a shift towards less energy intensive businesses. The oil price shocks during the period of 1973 to 1981 temporarily reversed this trend and drove up US energy expenditures sharply. The high-energy prices of this period induced numerous efficiency efforts, and served to promote many new petroleum and natural gas supply side projects. After the early 1980's energy prices resumed their long-term price decline, which continued until the year 2000 when nationwide prices began to increase again. Energy expenditures in Washington State followed a pattern similar to the larger U.S. economy. Energy expenditures as a percent of Gross State Product (GSP) are a bit lower in Washington, particularly expenditures for natural gas and electricity. This is primarily a result of our access to inexpensive hydropower, which results in a direct reduction in expenditures for electricity and also diminishes

<sup>3</sup> The increase in household expenditures for gasoline is even larger if the comparison is between 1999 and 2005.

the incentive for directly using natural gas for space and water heating. Figure 2 illustrates energy expenditures in the US and Washington State as a percentage of GDP and GSP respectively<sup>4</sup>. We estimate that as of 2005 energy expenditures will have risen to approximately 7% of GSP.

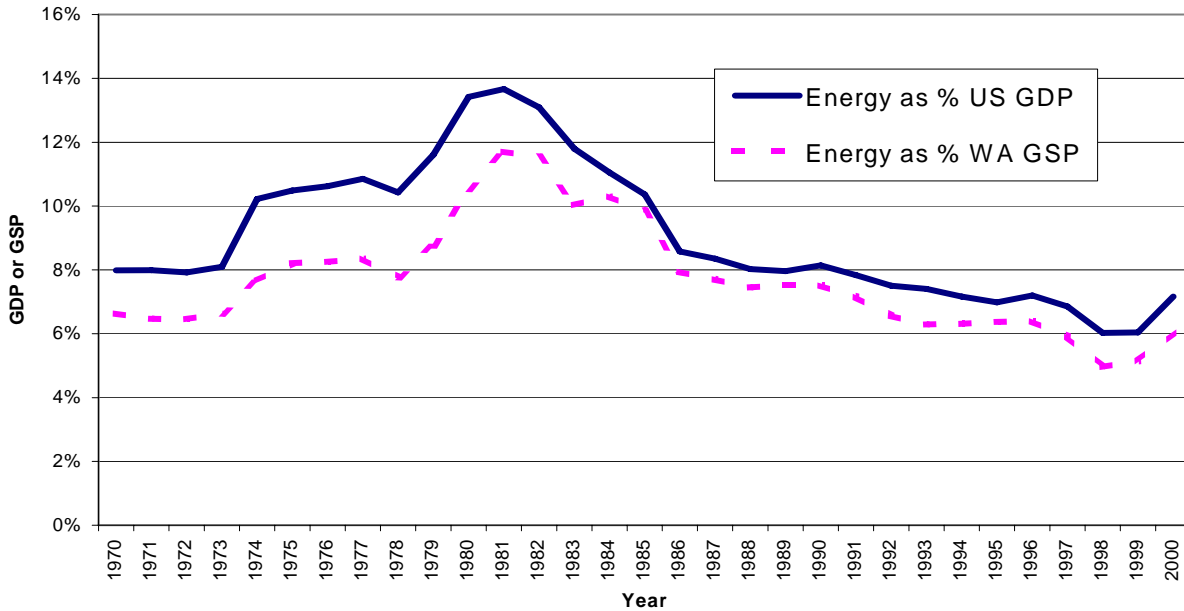


Figure 2: Annual Energy expenditures as percent of US GDP and Washington GSP.

<sup>4</sup> State GSP values for 1970-76 are imputed from national data.